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10/789,669	02/27/2004	Norman Paul Jouppi	200315363-1	7567

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EXAMINER	
OLSEN, LIN B	
ART UNIT	PAPER NUMBER
3661	

NOTIFICATION DATE	DELIVERY MODE
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	10/789,669	JOUPPI, NORMAN PAUL	
	Examiner	Art Unit	
	LIN B. OLSEN	3661	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *30 June 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-16,18-22 and 24-30* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-6,18-22 and 24-30* is/are rejected.

7)☒ Claim(s) *15 and 30* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on _____ is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

Applicant's arguments, see Page 8 filed June 30, 2008, with respect to the rejections of claims 6, 12, 18 and 24 under 35 USC 112 2nd paragraph have been fully considered and are persuasive because all of the claims in question depend on the preceding independent claim. Therefore, the rejection has been withdrawn.

Applicant's arguments, see Page 10, with respect to the rejection of claim 27 under 35 USC 112 2nd paragraph, have been fully considered but they are not persuasive. If the mobile device were started in a location having poor reception, it would have no chance to transmit a video signal before detecting the condition. The Examiner believes that the applicant is trying to convey that during normal operation of the mobile device, it is transmitting video to the user. However, that functionality is not clearly claimed in Claim 27.

Applicant's arguments with respect to claims 1-28 have been considered but are moot in view of the new ground(s) of rejection.

Claim Objections

Claim 3 is objected to because of the following informalities: The claim states that "surrogate is in a location when…" The Examiner notes that the surrogate is always at some location, and presumes the applicant is distinguishing this claim from claim 1 where the surrogate is moving while detecting. Hence the Examiner will

examine this claim presuming the applicant is claiming that the surrogate is stationary. Appropriate correction is required.

Claims 13 and 26 are objected to because of the following informalities: These claims are currently amended but are labeled as previously presented. Appropriate correction is required.

Claims 15 and 30 are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. The amendment to claim 13 incorporated the provisions of claim 15 and 30.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 26 and 27 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. The claims use the term “desired data rate and desired rate” but that term is not defined in the specification.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 27 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The claim recites transmitting a video signal at the acceptable bandwidth before detecting unsuitable degradation of wireless communications. It is not always possible to accomplish this as the wireless communications may be unsuitably degraded when the mobile device is started.

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

The four independent claims will be treated separately, but those dependent claims that are comparable will be treated together.

Claims **1-3, 5-9, 11, 13-5, 18-21 and 30** are rejected under 35 U.S.C. 103(a) as being unpatentable over Japanese Patent application 2003-052161 as described in Patent Abstracts of Japan 2004-260769, and machine translation of application included ('161) in view of James Gordon "Research Issues in Robot Safety" IEEE 1988 (Gordon), '161 is concerned with preventing a mobile robot from becoming inoperable due to loss of radio signals. Gordon surveys issues in Robot Safety.

Regarding independent **claim 1**, "A method of mobile device control comprising:

moving a surrogate under wireless control by a user;" – in '161 Abstract, Solution, lines 3-4, states that a mobile robot is remotely operated by a user.

"during the moving, detecting unsuitable degradation of wireless communications of the wireless control; and – in '161 translation paragraph 5, the mobile device monitors the condition of the radio waves while moving and in point (2) the readings are stored in a map.

"in response to the detecting and while the surrogate is still receiving the wireless communications, autonomously moving the surrogate to provide suitable wireless communications of the wireless control." – in '161 paragraph 10, detecting that the radio wave is worse and autonomously moving to improve the condition is described.

Regarding independent **claim 7**, "A method of mobile telepresencing comprising:" - The recitation of telepresencing in claim 7 has not been given patentable weight because it has been held that a preamble is denied the effect of a limitation where the claim is drawn to a structure and the portion of the claim following the preamble is a self contained description of the structure not depending for completeness upon the introductory clause. Kropa v. Robie, 88 USPQ 478 (CCPA 1951).

"moving a surrogate under real-time wireless control by a user;" - in '161 Abstract, Solution, lines 3-4, states that a mobile robot is remotely operated by a user.

"autonomously moving the surrogate to an area with adequate wireless coverage to regain wireless control when the wireless control is lost for a period of time; and" - in

'161 paragraph 10, autonomously moving to improve the condition of the radio waves is described.

while the surrogate is autonomously moving, activating a human perceptible indicator which is perceptible to humans in the presence of the surrogate. '161 does not address human perceptible indicators while the robot is moving autonomously. However, Gordon at page 1854, in the 3rd paragraph of *Human Factors Issues in Robot Safety,* mentions the use of warning signs, audible alarms and flashing lights to alert humans of Robots nearby. It would have been obvious to one of ordinary skill in the art at the time of the invention to apply the known technique of warning humans with the moving Robot of '161 to improve a similar device in a known way with a predictable result.

Regarding independent **claim 13, 15 and 30**, "A mobile device control system comprising:

a surrogate movable under wireless control by a user; and" - in '161 Abstract, Solution, lines 3-4, a mobile robot is remotely operated by a user.

"a computer/transceiver system on the surrogate for detecting loss of the wireless control, configuring the surrogate to loiter for a non-zero amount of time following the loss of the wireless control near a location at which the loss of the wireless control was detected, and" – In '161, Fig. 2, as described in paragraph 7, the mobile robot is shown having a computer and transceiver to control and carry on

communications. In the first lines of paragraph 5, the robot detects that the electric wave of the wireless stops, and further movement (migration) of the robot is stopped.

"moving the surrogate to regain wireless control independently of the wireless control after passage of a non-zero amount of time following the loss of the wireless control." – Further in '161 paragraph 7, the robot uses means to return to possible wireless connection space where remote control can be reestablished.

Regarding independent **claim 19**, "A mobile telepresencing system comprising:" - The limiter "telepresencing" is not given a patentable weight for the same reasons given with respect to claim 7.

"a surrogate movable under wireless control by a user; and" - in '161 Abstract, Solution, lines 3-4, a mobile robot is remotely operated by a user.

a computer/transceiver system for determining when the wireless control is lost and responsive to the determining, autonomously moving the surrogate to an area not currently receiving adequate coverage of the wireless control, but in which the surrogate previously experienced adequate coverage of the wireless control, to regain adequate coverage of the wireless control. – In '161, Fig. 2, as described in paragraph 7, the mobile robot is shown having a computer and transceiver to control and carry on communications. In the first lines of paragraph 5, the robot detects that the electric wave of the wireless stops, and further movement (migration) of the robot is stopped. Subsequently, the robot uses means to return to possible wireless connection space selected because the remote control worked in that location.

Regarding **claims 2, 8, 14, 20**, which are dependent on claims 1, 7, 13 and 19 respectively, additionally comprising:

autonomously moving the surrogate along a previously determined route. – '161 paragraph 10 describes a pattern of operation that is executed autonomously.

Regarding claims **3, 9, and 21**, which are dependent on claims 1, 7, and 19 respectively, wherein:

"the surrogate is in a location when the unsuitable degradation of the wireless communications is detected;" – In the 3rd section of paragraph 12 of '161, a stopped robot (migration ended) checks the electric wave situation and determines whether it is good or not good.

"autonomously moving the surrogate to provide suitable wireless communications of the wireless control occurs after passage of a period of time following the detecting of the degradation; and" – Further, when the situation is not good, the robot checks for a good reception location and moves to it.

"the method further comprises the surrogate loitering near the location during the passage of the period of time." – During the time the '161 robot was stopped, it lingered at a stop location checking the electric wave situation.

Regarding **claims 5 and 11** which are dependent on claims 1 and 7 respectively wherein:

"moving the surrogate under wireless control includes logging forward motion using at least one of dead reckoning, odometry, directional measurement, differential wheel rotation, or a combination thereof." – '161 does not discuss how the mobile robot measures distances but in paragraph 8, it records that the "mobile robot memorizes moving trucking information" while recognizing the location based on the distance measured by the initial value position and a sensor.

Regarding **claims 6 and 18** which are dependent on claims 1 and 13 wherein:

"autonomously moving the surrogate uses logged information of forward movement using at least one of dead reckoning, odometry, directional measurement, differential wheel rotation, or combination thereof; and

autonomously moving the surrogate uses waypoints back along a forward movement path for backtracking movement." – '161 reports recording radio wave strength in a map as the mobile robot is moving. In paragraph 11 the robot uses the map information to identify landmarks and deduces the direction and distance to a target position.

Claims **4, 10, 12, 16, 22, 24-25 and 28** are rejected under 35 U.S.C. 103(a) as being unpatentable over '161/ Gordon as applied to claims 1, 7, 13 , and 19 above, and further in view of A. Stentz, C.Dima, C Wellington, H. Herman and D. Stager "A System for Semi-Autonomous Tractor operations" (Stentz). Stentz is concerned with a tractor

operation that is intermittently in wireless control by a user and executes autonomously when possible.

Regarding **claim 25**, which is dependent on claim 1 wherein:

"the detecting comprises comparing a performance parameter associated with the wireless communications with a threshold." - '161 in paragraph 9 states that the mobile robot is always monitoring the electric wave intensity and recording the intensity in the map. Such measuring would naturally be against a threshold.

Regarding **claims 4 and 16**, which are dependent on claim 1 and 13 respectively, wherein:

"autonomously moving the surrogate includes measuring distance and" – in '161 paragraph 10, in describing the robot moving through a pattern of operation, the patent describes the robot moving 50cm ahead, which shows that the robot is measuring a distance as it is moving autonomously.

"avoiding collisions by the surrogate." – "161 does not mention obstacles. However, Stentz specifically detects obstacles (see section 5 on page 97). It would have been obvious to one of ordinary skill in the art at the time of the invention to use the known techniques of obstacle detection as discussed in Stentz to improve the robot of '161 so that obstacles would not stop it from completing a task.

Regarding **claims 10, 22 and 28**, which are dependent on claims 7, 19 and 10 respectively wherein:

"The computer/transceiver system for autonomously moving the surrogate includes;

backtracking means for measuring distance and avoiding collisions by the surrogate during backtracking; -

stopping means for stopping the surrogate for a chosen obstacle; and

means for resuming backtracking after removal of the obstacle."

Stentz teaches using a semi-autonomous tractor for a manned tractor and measuring distance by wheel rotations. When the tractor moving autonomously detects an obstacle, it stops (p. 90. paragraph under Fig. 2). Subsequently, when the obstacle is removed or it determined that the tractor has misidentified the obstacle, it resumes travel. It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate Stentz's response to an obstacle in the response mechanism of '161 to detecting poor communications since stopping for an obstacle on the ground is a safety response and applying a known technique to improve the safety of a mobile device is an improvement on the device.

Regarding **claims 12 and 24**, which are dependent on claims 7 and 19 respectively wherein:

"autonomously moving the surrogate to backtrack uses logged information of forward movement using at least one of dead reckoning, odometry, directional measurement, differential wheel rotation, or a combination thereof;

autonomously moving the surrogate to backtrack uses a slower speed than forward speed; and

autonomously moving the surrogate uses waypoints back along a forward movement path for backtracking movement considering the slower speed of backtracking." - '161/Gordon/Stentz disclose the invention except for using a slower speed when backtracking. It would have been obvious to one having ordinary skill in the art at the time of the invention to travel slower when maneuvering autonomously rather than under remote control because of the extra computation. Further, the condition of assuring that any humans near the device not be harmed implies slower motion. It has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. In re Aller, 105 USPQ 233.

Claims **26, 27 and 29** are rejected under 35 U.S.C. 103(a) as being unpatentable over '161/ Gordon/Stentz as applied to claim 25 above, and further in view of U.S. Patent No. 5,799, 154 to Kuriyan (Kuriyan). Kuriyan is concerned with monitoring warless packet networks.

Regarding **claim 26**, which is dependent on claim 25 wherein:

"the detecting comprises determining that a current non-zero data rate at which the surrogate is successfully transmitting data via the wireless communications is less than a desired data rate." – "161 and Stentz do not mention measuring the usable data rate. However, Kuriyan mentions in the abstract using data throughput as an indicator of

degraded performance. It would have been obvious to one of ordinary skill in the art of communications at the time of the invention to incorporate Kuriyan's measurement technique in the radio wave measuring circuitry of '161 to improve the measurement techniques by detecting degradation in another way.

Regarding **claim 27**, which is dependent on claim 26 further comprising:

"prior to the detecting, wirelessly transmitting a video signal at or above the desired rate from the surrogate to the user." – Neither '161 nor Gordon discuss video transmission as part of their robots. However, Stentz uses a robot that runs autonomously and/or under remote control that sends video back to the remote operator interface as shown in Fig. 4. It would have been obvious to one of ordinary skill in the art at the time of the invention to apply the video technique of Stentz to the known device of '161 which was ready fro further improvement to yield predictable results of a remote/autonomous robot that communicated both by video and radio.

Regarding **claim 29**, which is dependent on claim 25 wherein the detecting comprises determining that a current transmission delay associated with packets received by the surrogate is greater than an acceptable transmission delay. "161 and Stentz do not mention measuring the transmission delay. However, Kuriyan mentions in the abstract using service availability as an indicator of degraded performance. It would have been obvious to one of ordinary skill in the art of communications at the time of the invention to incorporate Kuriyan's measurement technique in the radio wave measuring

circuitry of '161 to improve the measurement techniques by detecting degradation in another way.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to LIN B. OLSEN whose telephone number is (571)272-9754. The examiner can normally be reached on Mon - Fri, 8:30 -5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas G. Black can be reached on 571-272-6956. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Lin B Olsen/
Examiner, Art Unit 3661

/Thomas G. Black/
Supervisory Patent Examiner, Art Unit 3661